

*THE EFFECTS OF BEHAVIORAL SKILLS TRAINING ON
STAFF IMPLEMENTATION OF
DISCRETE-TRIAL TEACHING*

RANDI A. SAROKOFF AND PETER STURMEY

THE GRADUATE CENTER AND QUEENS COLLEGE
CITY UNIVERSITY OF NEW YORK

A behavioral skills training package was used to train 3 teachers to correctly implement discrete-trial teaching. The mean baseline proportion of possible correct teaching responses for Teachers 1, 2, and 3 increased from 43%, 49%, and 43%, respectively, during baseline to 97%, 98%, and 99%, respectively, following training. These data indicate that the training package consisting of instructions, feedback, rehearsal, and modeling produced rapid and large improvements in the teachers' implementation of discrete-trial teaching.

DESCRIPTORS: autism, behavioral skills training, discrete-trial teaching, staff training

Discrete-trial teaching individualizes and simplifies teaching for children with developmental disabilities. This method, derived from learning theory, is an effective teaching procedure (Green, 1996) and is especially useful for teaching children with autism when adding new behavioral responses to their repertoires. Relatively few studies have examined methods of training staff to implement this procedure (e.g., Koegel, Russo, & Rincover, 1977). Behavioral skills training packages have been used to teach a wide variety of behavioral and other skills (Reid & Parsons, 1995), such as implementing functional analyses (Iwata et al., 2000) and stimulus preference assessments (Lavie & Sturmey, 2002). This study evaluated the effectiveness of this treatment package to train discrete-trial teaching.

METHOD

Participants

Three special education teachers and 1 3-year-old child with autism participated. Each teacher taught the same child in the child's home. Teacher 1 had worked as a home-based teacher using discrete-trial teaching for the past 2 years and held a master's degree in special education. Teacher 2 had worked as a teacher's aide in a classroom using this procedure for 2 years and also held a master's degree in special education. Teacher 3 had worked as a home-based teacher using the procedure for 5 months and was completing her master's degree in special education. All 3 teachers had received training in discrete-trial teaching by service providers other than the experimenter before this study.

Setting and Materials

Training took place in a small room in the child's home. During training the teacher sat at a table across from the child. Three items were displayed in front of the child on the table. The items were two-dimensional pic-

We thank the teachers and the child's parents for participation in this study. We also express our appreciation to Nancy S. Hemmes, Bruce L. Brown, and Sarah Hynes.

Correspondence should be sent to Peter Sturmey, Queens College, Department of Psychology, 65-30 Kissena Boulevard, Flushing, New York 11367 (e-mail: psturmey@aol.com).

ture cards or three-dimensional objects. The teacher held one corresponding identical item and handed it to the child to match. A match was defined as the child placing the item on top of the corresponding identical item. Correct matches resulted in the delivery of edible items or toys. The child's responding was recorded on data sheets.

Design and Dependent Measure

A multiple baseline design across subjects was used. The dependent measure was the percentage correct usage of 10 components during 10 consecutive discrete trials. The 10 components were identified from the literature (Green, 1996; McClannahan & Krantz, 1993; Smith, 2001) and pilot data. The 10 components included the teacher making eye contact with student for at least 1 s contiguous to delivery of a verbal instruction, giving no verbal instruction until the child showed the readiness response of being still, delivering instructions with clear articulation once and matching the instruction for that program, implementing the predetermined correction procedure within 3 to 5 s of the verbal direction after failure of the student to respond, providing appropriate and immediate reinforcement for correct responses, using behavior-specific praise, recording data following each trial, and placing a 5-s inter-trial interval between trials.

The experimenter recorded each observation session of teaching performance on videotape and scored the videotape after the session. We calculated the percentage of correct responses by dividing the total number of correct teacher responses by the total number of correct and incorrect responses, and multiplying the result by 100%.

Procedure

Baseline. During the first baseline session the experimenter gave the teacher a written list of definitions of the components of discrete-trial teaching. At the beginning of each

baseline session, the experimenter said, "Do discrete-trial teaching to the best of your ability." Each session consisted of 10 trials and lasted approximately 5 min. Sessions were videotaped and scored at a later time.

Training. During instruction, the experimenter provided a written copy of procedures and reviewed each component. The definitions were the same as those used during baseline. Next, the experimenter gave the teacher a copy of a graph of her performance from baseline and a copy of the previous session's data sheet. The experimenter gave feedback on the average baseline score and described her performance during the last session. In addition, the graphical representation of the teacher's previous performance was discussed. During rehearsal, the teacher sat with the student and performed three discrete trials without interruption. The experimenter provided the teacher with descriptive spoken feedback immediately following the performance. Verbal feedback included positive comments on target components performed correctly and informative feedback on components that the teacher needed to practice. During modeling, the experimenter sat with the student and modeled three additional discrete trials. The experimenter modeled the specific components that had been previously incorrectly implemented. Rehearsal and modeling were repeated, with the teacher performing three trials and the experimenter demonstrating three trials until 10 min elapsed.

Following a training session, the teacher performed 10 uninterrupted discrete trials. This was videotaped and scored at a later time. The criterion for completion of training was making 90% or more correct responses on three consecutive training sessions.

Posttraining. At the beginning of each posttraining session, the experimenter said, "Do discrete-trial teaching to the best of your ability." During the posttraining phase,

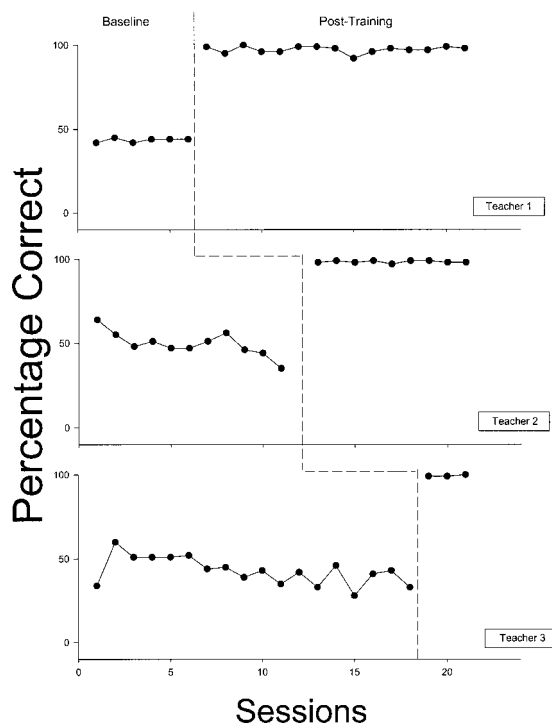


Figure 1. The percentage of correct implementation of discrete-trial teaching for Teachers 1, 2, and 3.

the experimenter did not conduct any training. Each session consisted of 10 trials and lasted approximately 5 min. Sessions were videotaped and scored later.

Interobserver Agreement

Interobserver agreement data were collected throughout 35% of sessions distributed across baseline and intervention phases for all 3 teachers. Agreement was calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100%. Agreement was 89% (range, 80% to 100%), 93% (range, 85% to 100%), and 94% (range, 80% to 100%) for Teachers 1, 2, and 3, respectively.

RESULTS AND DISCUSSION

The results are presented in Figure 1. During baseline all teachers showed low per-

formance, and following training all 3 teachers showed a large improvement in implementing discrete-trial teaching. The mean scores were 43%, 49%, and 43% during baseline and 97%, 98%, and 99% during posttraining for Teachers 1, 2, and 3, respectively.

Instructions, feedback, rehearsal, and modeling were responsible for a large increase in all 3 teachers' performance of discrete-trial teaching. Moreover, the procedure was taught quickly and effectively. These findings replicate and extend earlier findings (Iwata et al., 2000; Koegel et al., 1977; Lavie & Sturmey, 2002; Reid & Parsons, 1995).

This study contributed to the literature by addressing the efficacy of this staff-training package to teach highly specific skills. Koegel et al. (1977) used similar procedures to teach these skills to teachers (readings, viewing videotapes of correct and incorrect exemplars, and feedback); however, the baseline and posttraining phases were much shorter.

It is not clear which components of the package were necessary to effectively train staff in discrete-trial teaching. Future research should conduct a component analysis to determine the most cost-effective training method to implement these procedures. Additional research should extend the current findings by evaluating methods to disseminate effective staff training on a large scale, by addressing generalization of performance across children and tasks, and by evaluating maintenance of performance.

REFERENCES

- Green, G. (1996). Early behavioral intervention for autism: What does the research tell us? In C. Maurice (Ed.), *Behavioral intervention for young children with autism* (pp. 29-44). Austin, TX: Pro-Ed.
- Iwata, B. A., Wallace, M. D., Kahng, S., Lindberg, J. S., Roscoe, E. M., Conners, J., et al. (2000). Skill acquisition in the implementation of functional

- analysis methodology. *Journal of Applied Behavior Analysis*, 33, 181–194.
- Koegel, R. L., Russo, D. C., & Rincover, A. (1977). Assessing and training teachers in the generalized use of behavior modification with autistic children. *Journal of Applied Behavior Analysis*, 10, 197–205.
- Lavie, T., & Sturmey, P. (2002). Training staff to conduct a paired-stimulus preference assessment. *Journal of Applied Behavior Analysis*, 35, 209–211.
- McClannahan, L. E., & Krantz, P. J. (1993). On systems analysis in autism intervention programs. *Journal of Applied Behavior Analysis*, 26, 589–596.
- Reid, D. H., & Parsons, M. B. (1995). *Motivating human service staff: Supervisory strategies for maximizing work effort and work enjoyment*. Morganton, NC: Habilitative Management Consultants, Inc.
- Smith, T. (2001). Discrete trial training in the treatment of autism. *Focus on Autism and Other Developmental Disabilities*, 16, 86–92.

Received August 5, 2003

Final acceptance August 24, 2004

Action Editor, Meeta Patel